

CHROMOSOME NUMBER IN SARCOLAENACEAE

Sarcolaenaceae are a family of ten genera¹ and approximately 35 species, the living members of which are endemic to Madagascar (Cavaco, 1952; Capuron, 1963, 1970, 1973). The very distinctive tetrad pollen of the family is also recorded from the early Miocene of southern Africa (Coetzee & Muller, 1984). We report here the first chromosome counts for Sarcolaenaceae, the family previously unknown cytologically (Raven, 1975; Goldblatt, 1981, 1984). Based on counts from root tips, obtained from germinating seedlings, we have determined a chromosome number of $2n = 22$ in two species of *Sarcolaena* and one of *Leptolaena*.

The systematic position of the Sarcolaenaceae is not certain but currently the family is believed to be a member of Malvales (Takhtajan, 1980; Dahlgren, 1983). Takhtajan has suggested that it is related to Tiliaceae and Dipterocarpaceae. The Malvales as circumscribed by Takhtajan (1980) share many features with Flacourtiaceae (Violales) as well as with the primitive members of the Theales, especially Ochnaceae. Cronquist (1981) treated Sarcolaenaceae as transitional between Theales and Malvales while Hutchinson (1973) placed Sarcolaenaceae in Ochnales, an order that he considered to be derived from Theales. Recent bark and wood anatomical studies of Sarcolaenaceae (den Outer & Vooren, 1980; den Outer & Schütz, 1981) do not support a close relationship with Ochnaceae, but do suggest that Sarcolaenaceae are placed best in Malvales sensu Takhtajan. Thus despite the difference of opinion concerning the systematic position, Sarcolaenaceae are consistently considered to belong near or to be derived from Theales.

Chromosome number appears to have little to contribute to the understanding of the relationships of Sarcolaenaceae. It is, however, worth restating (after Raven, 1975) the broad cytological patterns in the orders Malvales and Theales. Relatively high base numbers characterize Sterculiaceae, which may have $x = 10$, while reported numbers in Elaeocarpaceae suggest a base num-

ber of $x = 14$. Numbers of $n = 18$ and $n = 11$ have been reported from two genera of Scytopetalaceae and Bombacaceae frequently have $n = 36$ and 72 , but also $n = 43$, 44 , and 48 , and possibly $n = 14$ and 28 in *Durio*, the latter two numbers requiring confirmation. Dipterocarpaceae, treated in Theales by Cronquist but more often placed in Malvales (Dahlgren, 1983), have $x = 7$, 6 , 11 , and 10 (Raven, 1975). Raven concluded that $x = 7$ is possibly basic for Malvales, but that $x = 10$ appears basic for Tiliaceae and Sterculiaceae, possibly an ancient reduction from $n = 14$. Sarcolaenaceae would fit conveniently into this hypothetical reduction series from an early polyploid base of $x = 14$ in Malvales. In Theales, high basic numbers of $x = 18$, 15 , 11 , and 10 characterize many genera of Theaceae, but Raven has suggested that $x = 7$ may be basic for the family and also for Ochnaceae. Thus Sarcolaenaceae would appear to accord as well cytologically with Theales as with Malvales.

Voucher information for the species counted is as follows:

Sarcolaena oblongifolia Gérard $2n = 22$. Madagascar. Prov. Antananarivo. Antananarivo. Cultivated, Parc de Tsimbazaza (original locality unknown), Dorr 2746 (MO, TAN).

S. multiflora Thouars. $2n = 22$. Madagascar. Prov. Tulear, Fort Dauphin, Forêt de Mandena, Dorr et al. 3996 (MO, TAN).

Leptolaena bojeriana (Baillon) Cavaco. $2n = 22$. Madagascar. Prov. Fianarantsoa, Col de Tapia, entre Antsirabe et Ambositra, Dorr et al. 3844 (MO, TAN).

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¹ Capuron (1970) elevated *Leptolaena* Thouars subgenus *Mediusella* Cavaco to generic rank, but he did not validly make the change in rank since he did not provide a full and direct reference to the place of valid publication of the basionym (ICBN, Art. 33.2). The genus is validly published as follows:

Mediusella (Cavaco) Dorr comb. et stat nov. (*Leptolaena* subgenus *Mediusella* Cavaco, Bull. Mus. Hist. Nat. Paris, sér. 2, 23: 135. 1951). Type: *Mediusella bernieri* (Baillon) Dorr comb. nov. (*Leptolaena bernieri* Baillon, Bull. Mens. Soc. Linn. Paris 1: 564. 1886).

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